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| 10/756,626 | 01/13/2004 | Mauro Cerisola | 36030108 US02 | 2502 |
| 57299 7590 05/09/2007 AVAGO TECHNOLOGIES, LTD. P.O. BOX 1920 DENVER, CO 80201-1920 | | | EXAMINER SINGH, DALZID E | |
| | | | ART UNIT 2613 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/756,626

Applicant(s)

CERISOLA, MAURO

Examiner

Dalzd Singh

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10, 12 and 13 is/are rejected.
- 7) ☒ Claim(s) 7, 9, 11 and 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 6, 8, 10, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art as disclosed by applicant on Fig. 2 (hereinafter "prior art") in view of Hauptmann et al (US Patent No. 7,012,979) or Melino et al (US Patent No. 6,137,522).

Regarding claim 1, shown in Fig. 2, the prior art shows a method of injecting an AC pilot tone into a digital signal comprising:

setting the power of said digital signal via a digital-to-analog converter (12) having a reference input for connection to a DC reference signal (14).

The prior art shows that pilot signal is injected into the output of the converter instead of combining it at the input reference signal. Hauptmann et al teach the use of AC signal combined with reference signal prior to input to converter (see Fig. 2 and col. 2, lines 11-18 and lines 31-45). Melino et al teach the combination of DC and AC to drive laser source (see Figs. 4, 5 and col. 8, lines 19-28). Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to inject AC signal to the reference signal as taught by Hauptmann et al or Melino

Art Unit: 2613

et al. One of ordinary skill in the art would have been motivated to add AC signal to the reference signal in order to control amplitude of the signal level.

Regarding claim 2, comprising applying to said reference input of said digital-to-analog converter a weighted sum of said DC reference signal (from 14) and said AC pilot tone (from 16).

Regarding claim 3, wherein said digital-to-analog converter has an output and exhibits a transfer function between said reference input and said output, wherein said transfer function has a high-frequency roll-off, the method including associating with said reference input of said digital-to-analog converter a pre-emphasis network for compensating for said roll-off (it is well known to provide pre-emphasis network; see paragraph [0046]).

Regarding claim 4, as indicated on paragraph [0046] of the specification, it is well known to provide pre-emphasis circuit; shown in Fig. 2 the prior art shows reference input of said digital-to-analog converter and a summation node for generating said weighted sum.

Regarding claim 5, shown in Fig. 2, the prior art shows providing a laser for generating said digital signal as a stream of optical pulses, the power of said pulses being set by said digital-to-analog converter.

Regarding claim 6, shown in Fig. 2, providing a laser driver (LD) having an input for setting the modulation current (I_{mod}) of said optical pulses and the step of driving

(I_{bias}) said setting input of the laser driver via the output of said digital-to-analog converter (10 and 12).

Regarding claim 8, shown in Fig. 2, the prior art shows a device for injecting an AC pilot tone into a digital signal, comprising:

a digital-to-analog converter (12) wherein the power of said digital signal is set by said a digital-to-analog converter, said digital-to-analog converter having a reference input for connection to a DC reference signal (14); and

a source of said pilot tone (16).

The prior art shows that pilot signal is injected into the output of the converter instead of combining it at the input reference signal. Hauptmann et al teach the use of AC signal combined with reference signal prior to input to converter (see Fig. 2 and col. 2, lines 11-18 and lines 31-45). Melino et al teach the combination of DC and AC to drive laser source (see Figs. 4, 5 and col. 8, lines 19-28). Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to inject AC signal to the reference signal as taught by Hauptmann et al or Melino et al. One of ordinary skill in the art would have been motivated to add AC signal to the reference signal in order to control amplitude of the signal level.

Regarding claim 10, wherein said digital-to-analog converter has an output and exhibits a transfer function between said reference input and said output, wherein said transfer function has a high-frequency roll-off, and wherein associated with said reference input of said digital-to-analog converter there is provided a pre-emphasis

network for compensating for said roll-off (it is well known to provide pre-emphasis network; see paragraph [0046]).

Regarding claim 12, shown in Fig. 2, wherein the device is associated with a laser source (L) for generating said digital signal as a stream of optical pulses, the power of said optical pulses being set by said digital-to-analog converter (10 and 12).

Regarding claim 13, shown in Fig. 2, the device comprises a laser driver (LD) having an input for setting the modulation current (I_{mod}) of said optical pulses and, wherein said setting input of the laser driver is set by the output of said digital-to-analog converter (10 and 12).

Allowable Subject Matter

3. Claims 7, 9, 11 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

4. Applicant's arguments filed 02 March 2007 have been fully considered but they are not persuasive.

Applicant argues that that Hauptmann et al teaches analog to digital converter and not digital to analog converter. Hauptmann et al is used as a secondary reference to teach combination of AC and DC signal. The digital to analog converter is taught by

Art Unit: 2613

the primary reference (see claim rejection). The primary reference did not teach AC signal combined with DC signal, therefore, Hauptmann et al is provided to teach combination of DC signal with AC signal (see Fig. 4A of Hauptmann et al).

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is (571) 272-3029. The examiner can normally be reached on Mon-Fri 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2613

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DS
May 7, 2007

DALZID SINGH
PRIMARY EXAMINER

Dalzid Singh